

## Tracking Radioactive Sources in Commerce

Deborah Kopsick  
Environmental Scientist  
Office of Radiation and Indoor Air, Radiation Protection Division  
(202) 343-9238  
kopsick.deborah@epa.gov

**Key Words:** radioactive material transportation, radio-frequency identification (RFID), integrated technologies, tagging, safety and security

The Environmental Protection Agency and the Department of Energy Oak Ridge National Laboratory are investigating technologies that will assist in the improvement of the tracking and monitoring of high activity radiological sources while in commerce. An effective tracking technology will help prevent inadvertent or illegal loss of radioactive sealed sources. Over 300 missing radioactive sealed sources are reported lost every year to the Nuclear Regulatory Commission, and these materials can pose a significant environmental and health risk through direct exposure to radiation, contamination of commercial facilities and products, and possible use in terrorist activities. There have been recent homeland security concerns that terrorists could intercept a legitimate shipment of radioactive material and use it to manufacture a “dirty bomb.”

There are a number of technologies that can be used to track assets; however, there has been no testing to determine if any of these technologies work in proximity to radioactive materials. An integrated wireless asset tracking technology, incorporating real-time tracking with radio-frequency identification (RFID), global positioning satellite (GPS), local area networking (WiFi and Bluetooth) and wide area networking (mobile phone, internet ), is currently being field-tested in Oak Ridge, TN. The long-term goal of this project is to incorporate the optimized technology into the existing commercial trucking and shipping infrastructure, increasing safety and security of radioactive materials. It is anticipated that this technology can also be used to increase security of radioactive materials and devices at medical facilities, warehouses, and during international shipments.